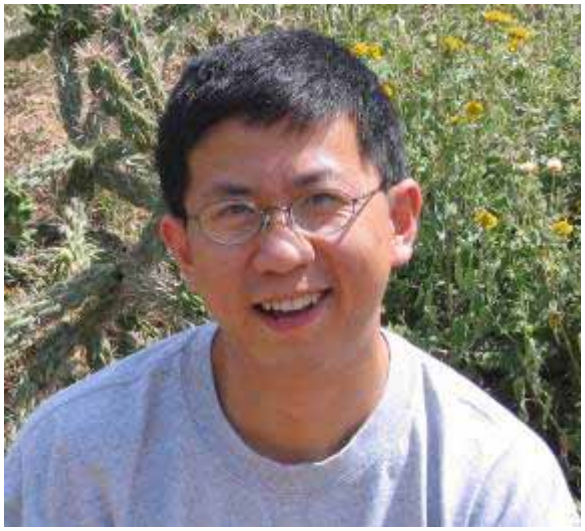

Xiao-Min Lin
Scientist
Theme: Electronic and Magnetic Materials
& Devices
Phone: 630-252-4447 (Office)
630-252-6289 (Lab)
Fax: 630-252-4646
E-mail: xmlin@anl.gov

Center for Nanoscale Materials
Building 440, A-226
Argonne National Laboratory
9700 South Cass Avenue
Argonne, IL 60439

Research summary:
Colloidal chemistry offers many unique advantages to create new functional nanoscale materials and devices. Nanocrystals obtained through chemical synthesis are typically much smaller than the current state-of-the-art lithographic techniques can achieve. They are typically highly crystalline with very few surface defects. Our current research efforts include developing synthetic methods that yield nanocrystal building blocks with complex structures, understanding the driving force that leads to self-assembly of nanocrystal arrays, especially developing approaches to form composite nanocrystal arrays with multi-functionalities. And ultimately, we would like to understand the evolution of the physical properties from a single nanocrystal to large assemblies.

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